

PPH



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/692,354	10/19/2000	Danny Marvin Neal	AUS-2000-0625-US1	6890
35525	7590	03/08/2004	EXAMINER	
DUKE W. YEE CARSTENS, YEE & CAHOON, L.L.P. P.O. BOX 802334 DALLAS, TX 75380			PATEL, ASHOKKUMAR B	
			ART UNIT	PAPER NUMBER
			2154	3
DATE MAILED: 03/08/2004				

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Applicati n N

09/692,354

Examiner

Ashok B. Patel

Applicant(s)

NEAL ET AL.

Art Unit

2154

-- The MAILING DATE of this communication appears on the cover sheet with the corresponding address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-21 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-21 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. ____. |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date ____. | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

1. Application Number 09/692,354 was filed on 10/19/2000. Claims 1-21 are subject to examination.

Specification

2. The disclosure is objected to because of the following informalities: Related arts are lacking their corresponding serial numbers. See page 1. Appropriate correction is required.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1, 8-10 and 17-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over International Pub No. WO 00/72159 (herein after Krause) and in view of Shah et al. (hereinafter Shah)(US 6, 694, 361).

Referring to claim 1,

The reference Krause teaches the reliable datagram services with an underlying end-to-end context of a channel adapter. (Fig.6.) The reference also teaches that the SDRs at the source and SDRs at the destination are created where specific application instances associated with specific SDRs. (storing Reliable datagram domain within reliable datagram and end-to-end context) (page 3, lines 5-15, Fig.4). The reference teaches the examples of protection violations including invalid protection keys, invalid access

right request etc. (page 21, lines 30-31 and page 22 lines 1-4). The reference fails to teach the queue pairs and storing partition keys within end-to-end contexts. The reference Shah teaches the virtual interface which can contain work queues formed in pairs including a send queue and a receive queue which is located in channel adapters of any host systems. (col.3, lines 29-47, col.6, lines 22-43). The reference also teaches the subnet manager responsible for various functions at the channel adapter including assigning unique addresses to all channel adaptor ports. Also, the reference teaches partition manager as part of subnet manager assigning storing partition keys to the fabric agent (channel adapter ports)(col.7, lines 23-42) Therefore, it would have been obvious for one in ordinary skill in the art at the time the invention was made to modify Krause to include the teachings of Shah such that the each SDR is assured a reliable connection with the incoming datagram by a partition key assigned to the fabric agent (channel adapter ports). This will allow the re-use of the same destination SDR resource set per multiple destination application instances particularly identified by the partition keys in the datagram.

Referring to claims 8 and 9,

Keeping in mind of the teachings of Krause, the reference also teaches that the SDRs at the source and SDRs at the destination are created where specific application instances associated with specific SDRs. (storing Reliable datagram domain within reliable datagram and end-to-end context) (page 3, lines 5-15, Fig.4). It fails to teach storing reliable datagram domain numbers for kernel code and, user code and consumer processes wherein the kernel reliable datagram domain can only be used by

kernel code. The reference Shah teaches the separation of OS system kernel and the host channel adapter and its associated driver stack. (Fig. 5) This allows bypassing the kernel and, accessing the host channel adapter directly by the users or the consumer processes as the host channel adapter is provided to access the switched fabric directly. (col.5, lines 40-67). Therefore, it would have been obvious for one in ordinary skill in the art at the time the invention was made to modify Krause to include the teachings of Shah such that the each SDR (Reliable datagram domain) is directly accessible by the user or the consumer processes by bypassing the operating system kernel process (kernel reliable datagram domain can only be used by kernel code.) The host-fabric adapter allows the host system to exchange data with one or more remote systems via the switched fabric, while preferably being compatible with many currently available operating systems as taught by Shah.

Referring to claim 10,

Claim 10 is a claim to a computer program product in a computer readable medium for use in a data processing system, which performs the steps of the method of claim 1. Therefore, claim 10 is rejected for the reasons set forth in claim 1.

Referring to claims 17 and 18,

Claims 17 and 18 are claims to a computer program product in a computer readable medium for use in a data processing system, which performs the steps of the methods of claims 8 and 9. Therefore, claims 17 and 18 are rejected for the reasons set forth in claims 8 and 9.

Referring to claim 19,

Claim 19 is a claim to a system that provides means for performing the steps of method of claim 1. Therefore, claim 19 is rejected for the reasons set forth in claim 1.

5. Claims 2-7, 11-16, 20 and 21 rejected under 35 U.S.C. 103(a) as being unpatentable over International Pub No. WO 00/72159 (herein after Krause) and in view of Shah et al. (hereinafter Shah)(US 6, 694, 361) as applied to claim 1 above, and further in view of Murayama et al. (hereinafter Murayama)(US 5, 617, 424).

Referring to claim 2,

Keeping in mind the teachings of Krause and Shah as indicated above, both references fail to teach prohibiting consumer process directly accessing the reliable datagram domain. The reference Murayama teaches the method of communication between network computers by diving packet data into parts for transfer to respective regions. (Abstract). The reference also teaches the receiving side checks the key in the packet that has arrived and the key in the communication region. Thereby the reference teaches that the consumer process cannot directly access the reliable datagram domain without protection being checked by comparing the key. (col.5, lines 23-67 and col.6, lines 1-13). Therefore, it would have been obvious for one in ordinary skill in the art at the time the invention was made to modify Krause by including the teachings of Shah such that the each SDR is assured a reliable connection with the incoming datagram by a partition key assigned to the fabric agent (channel adapter ports) and the teachings of Murayama where the keys are compared as shown for security protection. . This will

Art Unit: 2154

allow a direct transfer of received packets to the region of receiving processor and eliminate the data copy processing as taught by Murayama.

Referring to claims 3 and 4,

Keeping in mind the teachings of Krause and Shah as indicated above, the reference additionally teaches of infiniband subnet (Fig.6) where the datagrams are normally processed as they received according to Infiniband partitioning semantics. (col.6, lines 59-67 and col.7, lines 1-58). However, both of these references fail to teach the processing step of comparing the keys and other control data such as specific SDRs (Reliable datagram domain) of incoming messages. The reference Murayama teaches the two-step process of processing of data packet containing the information on receiving region (domain) and a security key for protection. The reference teaches that the receiving side checks the key in the packet that has arrived and the key in the communication region and after the protection key checking is successful, the packet is transferred to a physical address according to the receive region assignment (Reliable datagram domain)((col.6, lines 22-67 and col.6, lines 1-13). Therefore, it would have been obvious for one in ordinary skill in the art at the time the invention was made to modify Krause by including the teachings of Shah such that the each SDR is assured a reliable connection with the incoming datagram by a partition key assigned to the fabric agent (channel adapter ports) and the teachings of Murayama where first the keys are compared, if successful, and then the receive region is compared per SDR of Krause as shown for security protection. . This will allow a direct transfer of received packets to

Art Unit: 2154

the region of receiving processor and eliminate the data copy processing as taught by Murayama.

Referring to claim 5,

The reference Krause teaches the claimed elements. (page 24, lines 19-25).

Referring to claim 6,

Keeping in mind the teachings of Krause and Shah as indicated above, both of these reference fails to teach the processing step of comparing the keys and other control data such as specific SDRs (Reliable datagram domain) outgoing messages. The reference Murayama teaches the two-step process of processing of data packet containing the information on receiving region (domain) and a security key for protection. The reference teaches determination a key that designates the access right to the communication region in the transmitting and receiving of data. Thus the outgoing packet is assigned with assigned receiving region and a security key where both of these components go through comparison process for their validity. ((col.6, lines 22-67 and col.6, lines 1-13). Therefore, it would have been obvious for one in ordinary skill in the art at the time the invention was made to modify Krause by including the teachings of Shah such that the each SDR is assured a reliable connection with the incoming datagram by a partition key assigned to the fabric agent (channel adapter ports) and the teachings of Murayama where first the receiving region (domain) is compared, if successful, and then the security key is compared per SDR of Krause as shown for security protection. This will allow a direct transfer of received packets to the

region of receiving processor and eliminate the data copy processing as taught by Murayama.

Referring to claim 7,

Keeping in mind the teachings of Krause as stated above, the reference also teaches the specific SDR associated with the specific AI or AIs. (Fig.4.) The reference also teaches that AI employing the reliable datagram serves can rely on the underlying communication services to correctly deliver the units of work or on error notification in the event of an unrecoverable error. (Page 6, lines 16-20). Thereby, the reference teaches that if the specific SDR has to be connected to a specific AI otherwise the transmitting packet will result in an error.

Referring to claim 11,

Claim 11 is a claim to a computer program product in a computer readable medium for use in a data processing system, which performs the steps of the method of claim 2. Therefore, claim 11 is rejected for the reasons set forth in claim 2.

Referring to claims 12 and 13,

Claims 12 and 13 are claims to a computer program product in a computer readable medium for use in a data processing system, which performs the steps of the methods of claims 3 and 4. Therefore, claims 12 and 13 are rejected for the reasons set forth in claims 3 and 4.

Referring to claim 14,

Claim 14 is a claim to a computer program product in a computer readable medium for use in a data processing system, which performs the steps of the method of claim 5. Therefore, claim 14 is rejected for the reasons set forth in claim 5.

Referring to claim 15,

Claim 15 is a claim to a computer program product in a computer readable medium for use in a data processing system, which performs the steps of the method of claim 6. Therefore, claim 15 is rejected for the reasons set forth in claim 6.

Referring to claim 16,

Claim 16 is a claim to a computer program product in a computer readable medium for use in a data processing system, which performs the steps of the method of claim 7. Therefore, claim 16 is rejected for the reasons set forth in claim 7.

Referring to claim 20,

Claim 20 is a claim to a system that provides means for performing the steps of method of claim 3. Therefore, claim 20 is rejected for the reasons set forth in claims 3 and 4.

Referring to claim 21,

Claim 21 is a claim to a system that provides means for performing the steps of method of claim 6. Therefore, claim 21 is rejected for the reasons set forth in claim 6.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ashok B. Patel whose telephone number is (703) 305-2655. The examiner can normally be reached on 8:00am-5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John A Follansbee can be reached on (703) 305-8498. The fax phone

Art Unit: 2154

number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Abp



JOHN FOLLANSBEE
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2100